PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Seats

We, ROBERT JAMES COUSINS, a British subject, of 39, Tithe Walk, Mill Hill, London, N.W.7, and LEABANK CHAIRS LIMITED, a British company, of 51, Churchfields, Broxbourne, Herts., do hereby declare the nature of this invention to be as follows:—

This invention relates to seats and is directed towards the provision of an improved form of seat which can be used in vehicles.

The seat of the present invention has a back-rest and this back-rest is correlated to the seat so that the inclination of the seat adjusts itself automatically to the inclination of the back-rest.

We will now proceed to describe in some detail the construction according to the invention.

This consists of a seat unit specially suitable for use in aircraft; the base of the seat unit supporting frame is secured to the floor or stationary structure, and the seat is attached to this base by two systems of links having their lower pivoting centres in the base and their upper pivoting axes lying across the seat from side to side.

One system of links is towards the front of the seat and one towards the back, so that the seat can move backwards and forwards relative to the base and assume a varying slope at each different position.

The back-rest is pivoted to the base with its pivoting axis parallel to the axes of the seat link systems, and is coupled to one of the seat link systems by a coupling link so that movement of the back-rest about its pivot urges the seat links to a new angular position, thus correctly adjusting the position and angle of slope of the seat.

By mounting the seat link systems so that the weight of the seated persons is always urging the seat forward, the back-rest will be urged forward correspondingly, thus when a seated person recovers from a backward leaning position the back-rest closely follows the person's back.

Alternatively this return of the back-rest may be effected by a spring, which is always urging back-rest and seat against a forward stop.

The seat is conveniently of hardwood and two hardwood back pads are preferably arranged at the top of the back-rest, and a felt pad on a plywood or similar base is arranged below them.

The lower back pad is preferably drilled to provide a fixing for a safety belt.

It will be understood that the invention is not restricted to the details of the specific embodiments described which may be varied without departing from the broad idea underlying it.

Dated the 29th day of July, 1943.
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COMPLETE SPECIFICATION

Seats

We, ROBERT JAMES COUSINS, a British subject, of 39, Tithe Walk, Mill Hill, London, N.W.7, and LEABANK CHAIRS LIMITED, a British company, of 51, Churchfields, Broxbourne, Herts., do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention is designed to provide an improved form of seat for use where it is desirable to have means for readily altering the position of the body whilst seated from a normal sitting posture to reclining postures within a determined range of movement.

In the seat of the present invention a linkage is formed by a seat portion carried by forward and rearward link systems pivoted to a base and an independent pivoted backrest is coupled thereto so that angular displacement of the back-rest automatically adjusts the seat portion to suit resulting more and less upright postures.

[*Price* 1/-]

Other parts of the invention are embodied in a typical form illustrated by the accompanying drawings. The parts of the invention for which a monopoly is desired are those delimited by the claims.

In the drawings:—

Fig. 1 is a side elevation showing a construction designed more especially for use in aircraft or other vehicles,

Fig. 2 is a front view of the same.

In this construction the base 1 of the seat supporting structure is secured to the floor of the aircraft or other vehicle. It is shown with a pivotal connection at 2 to a sub-base portion 3 which can be bolted to the floor, so that the seat unit can be angularly adjusted in a horizontal plane if desired. A clamping lever 4 then enables an occupant to lock the seat unit in any desired angular position. The seat 5 is attached to the base 1 by two systems of links, having their lower pivoting centres in the base and their upper pivoting centres close to the lower face of the seat, with their axes lying across the seat from side to side.

One system of links 6 is towards the front of the seat and one 7 towards the back so that the seat can move backwards or forwards relative to the base and assumes a varying slope at different positions, the slope increasing as the seat is lowered. It will be seen that the desired effect is obtained with the simple linkages shown by the use of a front link 6 longer than the back link 7.

Incorporated in the lower pivot arrangement of one of the seat link systems is a locking unit controlled by a lever or handwheel, which locks the link system in any desired angular position about its lower pivot: thus enabling the seat to be secured in any desired position and slope. The preferred locking unit comprises a pair of short links 8, 9 with a friction unit 10 comprising a series of laminations attached to a moving member of the link system (link 6), by link 8 interleaved with laminations attached to the base 1 by link 9 and a spindle 11 and hand control 12 for clamping the interleaved laminations.

The bracket 13 is pivoted to a bracket 14 provided on the base structure and has its pivoting axis parallel to the axes of the link systems. The back rest is coupled to one of the link systems, with a coupling link 15 so that movement of the backrest about its pivot urges the seat links 6, 7 to a new angular position thus correcting adjusting the position and slope of the seat.

The pivoting centres of the seat link systems are arranged so that the weight of a seated person always urges the seat link systems towards a normal position shown in full lines with the links 6 against a stop 16 formed on the base 1; the backrest 13 is correspondingly urged towards its nomal (full line) position. In the described construction this normal position of seat and backrest is such that it permits a person to sit in an average upright posture with the knees not unduly close to the floor; thus when recovering from a reclining position the backrest closely follows the person's back.

The extreme reclining position is shown by chain-dotted lines, with the links 7 against a stop formed by bracket 14. It will be observed that the seat as a whole is slightly raised, while its slope is correspondingly decreased to give a desired knee-height for an average person. The user can maintain any position within the determined range without difficulty by suitably distributing his weight.

The relationship between the angular movement of the seat link systems is made such that with a normal person comfortably disposed the force tending to urge the backrest and seat into a reclining position and the force tending to restore the seat and backrest to the normal position are nearly equal. Thus a person may vary the position of the body to or from a reclining positon with very little effort.

To assist in recovering from extreme reclining positions a spring may be fitted in the seat link systems which independently urges the seat and backrest towards their normal positions.

The seat and backrest may be constructed of a plastic material formed to a body-matching shape covered with upholstery following this formed shape to give maximum comfort.

It will be understood that the invention is not restricted to the details of the specific embodiment described which may be varied without departing from the broad idea underlying it.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A seat in which a linkage is formed by a seat portion carried by a forward and rearward link system pivoted to a base and an independently pivoted backrest is coupled thereto so that angular displacement of the backrest automatically adjusts the seat portion to suit resulting more and less upright postures.

2. A seat in which a linkage is formed by a seat portion carried by forward and rearward inclined link system pivoted to

a base and an independently pivoted backrest is coupled thereto so that angular displacement of the backrest automatically causes smaller angular displacement of the link systems to position the seat to suit resulting more or less upright postures.

3. A seat having a seat portion carried from a base by two systems of inclined links, one system being attached to the seat towards the front of the seat and the other towards the back of the seat, an independently pivoted backrest and a coupling link between the backrest and the seat part linkage connected at such points as to give a smaller angular displacement of the seat carrying link systems than the corresponding angular displacement of the back rest.

4. A seat according to any of the preceding claims in which the seat portion is carried by such linkage and the backrest is so connected to the linkage that a load on the seat portion urges seat portion and backrest towards positions designed to suit a user seated in normal upright posture.

5. A seat according to any of the preceding claims in which the seat portion has a downward inclination towards the rear and the pivots of the link systems carrying it are so disposed that a load on the seat portion tends to lower it and move it forward while increasing its inclination.

6. A seat according to any of the preceding claims in which locking means are provided to maintain the parts in any desired position.

7. A seat according to any of the preceding claims mounted for angular adjustment in the horizontal plane.

8. A seat according to any of the preceding claims in which the seat portion is mounted on forwardly inclined front links and shorter forwardly back links and the backrest is pivoted on a parallel axis and connected by a link to the linkage of the seat portion.

9. An improved seat according to any of the preceding claims in substantially the form described with reference to and shown upon the accompanying drawings.

Dated the 31st day of July, 1944.

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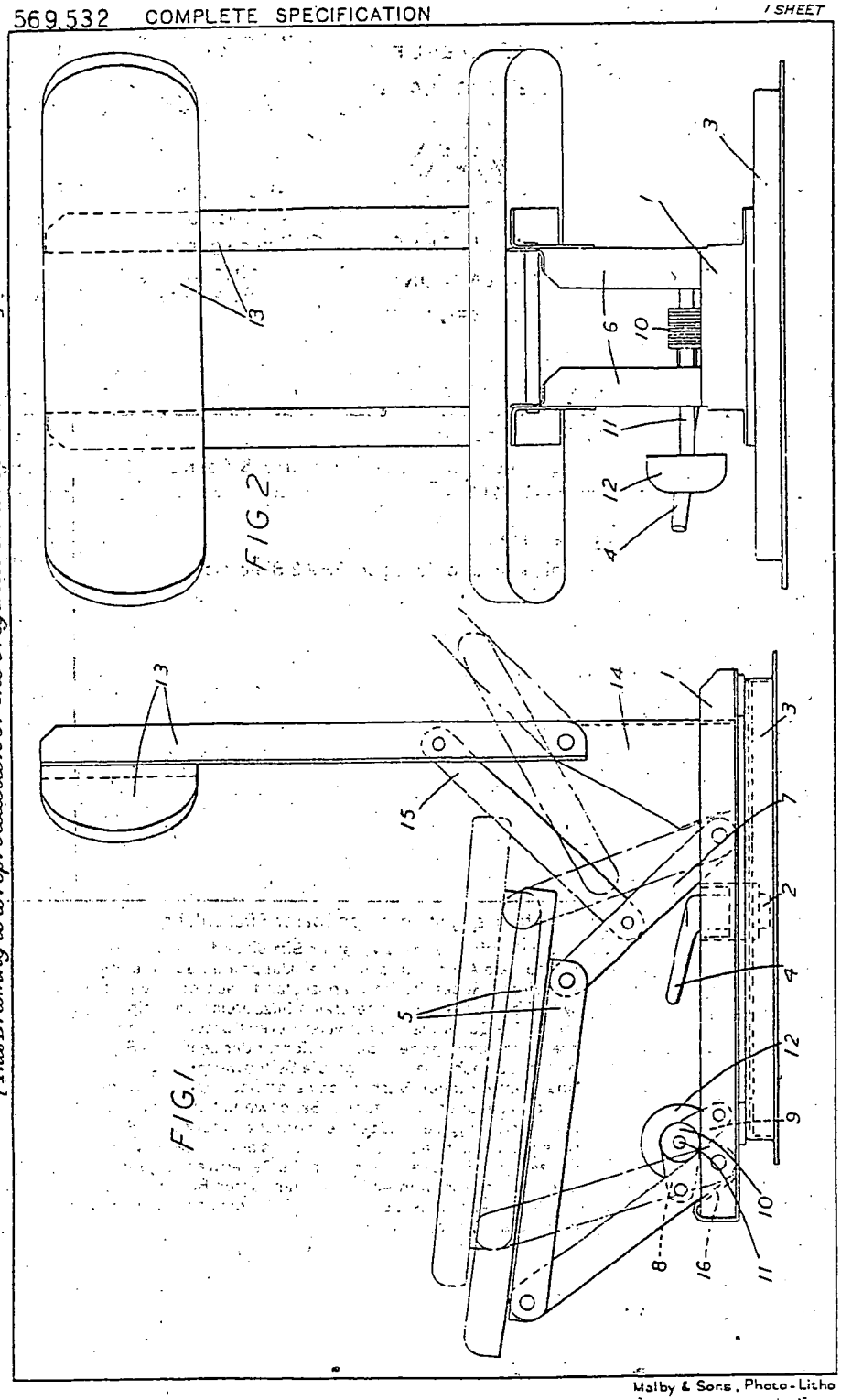
569,532 COMPLETE SPECIFICATION 1 SHEET



[This Drawing is a reproduction of the Original on a reduced scale.]

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